

Features:

- 9.0 dB Typical Gain
- 28.5 dBm Typical P1dB
- IP3 @ 44 dBm
- EVM = 1.2% at 20 dBm Pout
- Single Positive Bias
- Internally Prematch
- Leadless Surface Mount

Applications:

- 802.16 WiMax
- 802.11 a/n WLAN
- Wireless Communications
- Telecomm Infrastructure



Description:

The WPS-495917-02 is a high linearity GaAs FET amplifier partially pre-matched to 50 ohms operating over the frequency range 4.9 to 5.9 GHz. The WPS-494917-02 is packaged in a leadless chip carrier. The 02 package is 'lead free' and solder ability per Mil-STD 750, method 2026. The package construction is guaranteed to pass gross leak.

Electrical Specifications:

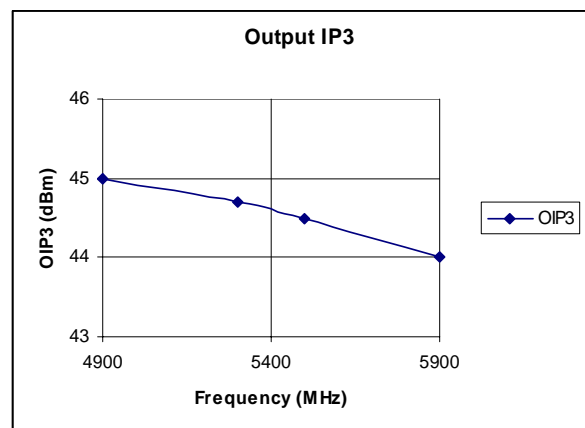
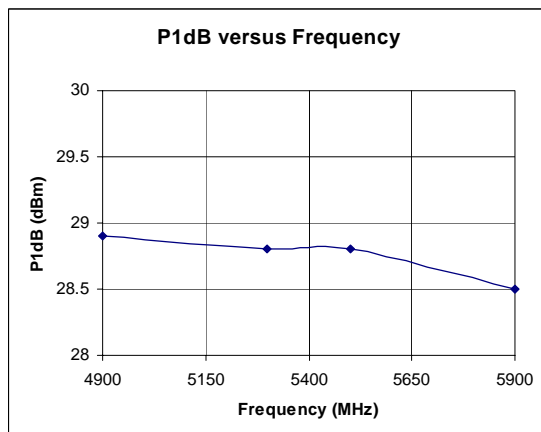
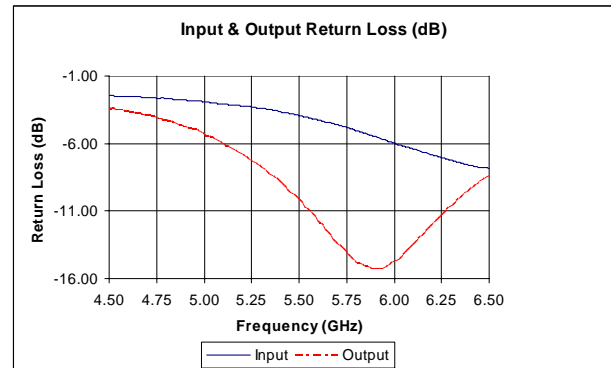
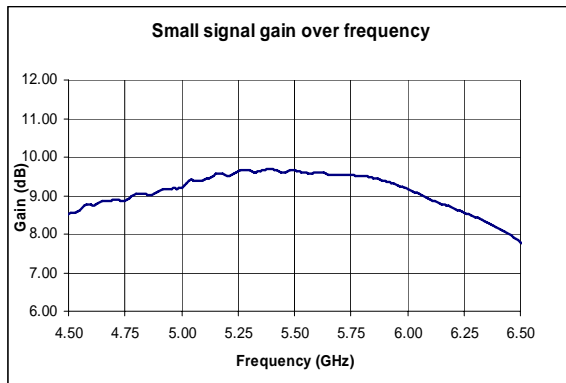
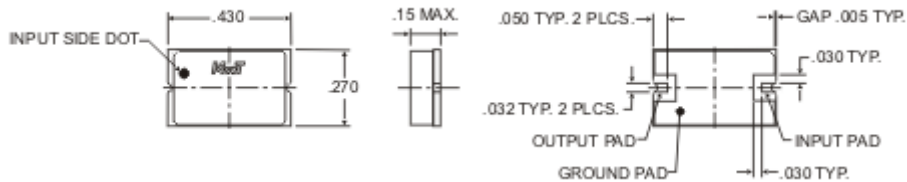
• at 25°C, Vdd = 7.5 V, Zo = 50 ohms

| SYMBOL | PARAMETERS | Min | Typical | Max | Unit |
|-----------------|-------------------------------------|-----|-------------|-----|------|
| Freq. | Frequency Range | 4.9 | | 5.9 | GHz |
| SSG | Small Signal Gain | | 9.0 | | dB |
| VSWR | Input/ Output VSWR | | 3.0:1/2.0:1 | | - |
| P1 dB | Pout at 1 dB Comp Point | | +28.5 | | dBm |
| Pout | <2.5% EVM 52 carriers | | 22.0 | | dBm |
| IP3 | Third-order Intercept | | 44.0 | | dBm |
| I _{ds} | DC Current, Vgs=-0.5 volts | | 250 | | mA |
| R _{th} | Thermal Resistance junction to case | | 26 | | °C/W |

Absolute Maximum Ratings

| | |
|------------------------------------|------------------|
| Maximum Bias Voltage | 8.0 V |
| Maximum Continuous RF Input Power | +18 dBm |
| Maximum Peak Input Power | +20 dBm |
| Maximum Case Operating Temperature | +70 °C |
| Maximum Storage Temperature | - 65 to + 150 °C |

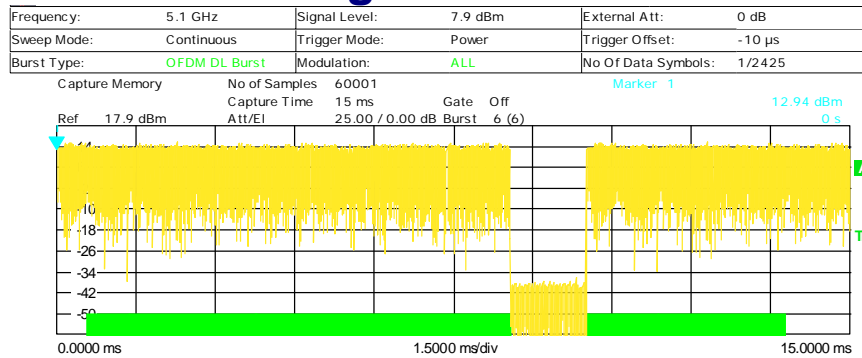
Package Outline Diagram (Package 02)



Typical data at 25°C, Vdd=6.5 volts, Vgs=-0.7 (measurements taken in production test fixture)

The following downlink WiMAX 802.16d test signal, as shown in the Figure below, which includes preambles, FCH and QPSK, 16 QAM and 64 QAM is used to evaluate the WPS amplifier. The output power is demodulated to measure EVM for 64 QAM. The EVM error is the accumulated error from the modulator and WPS amplifier. The EVM floor for the modulator is 0.4%. At 19 dBm the WPS amplifier contributes less than 1% EVM.

22 dBm average 802.16 for 2% EVM

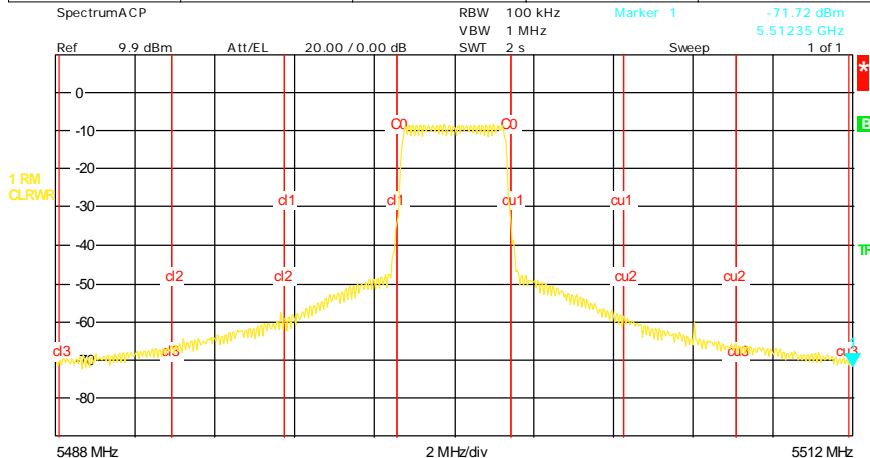


Burst Summary

| Downlink Burst | Summary | ListBurst | Area | Modulation | Length[sym] |
|----------------|----------|-----------|------|------------|-------------|
| Burst 3 | Preamble | BPSK | 1 | 9.91 | -40.56 |
| | Data | 64QAM | 59 | 7.04 | -34.43 |
| Burst 4 | Preamble | BPSK | 1 | 9.72 | -39.08 |
| | Data | BPSK | 6 | 6.96 | -32.22 |
| Burst 5 | Preamble | BPSK | 1 | 9.79 | -41.89 |
| | Data | QPSK | 9 | 7.04 | -37.44 |
| Burst 6 | Preamble | BPSK | 1 | 9.88 | -39.63 |
| | Data | 16QAM | 29 | 7.02 | -34.74 |
| Overall | | | 147 | 8.65 | -36.82 |

| | | | | | |
|-------------|---------------|---------------|---------|---------------------|--------|
| Frequency: | 5.5 GHz | Signal Level: | 8.4 dBm | External Att: | 0 dB |
| Sweep Mode: | Continuous | Trigger Mode: | Power | Trigger Offset: | -10 µs |
| Burst Type: | OFDM DL Burst | Modulation: | ALL | No Of Data Symbols: | 1/2425 |

| Adjacent Channel Power Relative | | | | |
|---------------------------------|-----------|----------|-----------|-----------|
| Channel | Bandwidth | Spacing | Lower | Upper |
| TX | 3.5 MHz | ... | | 5.34 dBm |
| Adjacent | 3.5 MHz | 3.5 MHz | -39.58 dB | -40.02 dB |
| Alternate | 3.5 MHz | 7 MHz | -53.39 dB | -53.43 dB |
| 2nd Alternate | 3.5 MHz | 10.5 MHz | -59.18 dB | -58.65 dB |



EVM vs Pout

